

10/577390

IAP20 Rec'd PGT 27 APR 2006

SEQUENCE LISTING

<110> Chen, Bao-Lu
 Hurst, Deborah
 Lee, Sang Hoon
 Long, Li
 Lu, Xiaofeng
 Luqman, Mohammad
 Yabannavar, Asha
 Zaror, Isabel

<120> Antagonist Anti-CD40 Monoclonal
 Antibodies and Methods for Their Use

<130> PP20107.004 (282916)

<150> 60/565,710

<151> 2004-04-27

<150> 60/525,579

<151> 2003-11-26

<150> 60/517,337

<151> 2003-11-04

<160> 12

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 720

<212> DNA

<213> Artificial Sequence

<220>

<223> Coding sequence for light chain of 12.12 human
 anti-CD40 antibody

<221> CDS

<222> (1)...(720)

<400> 1

atg	gcg	ctc	cct	gct	cag	ctc	ctg	ggg	ctg	cta	atg	ctc	tgg	gtc	tct	48
Met	Ala	Leu	Pro	Ala	Gln	Leu	Leu	Gly	Leu	Leu	Met	Leu	Trp	Val	Ser	
1				5					10					15		

gga	tcc	agt	ggg	gat	att	gtg	atg	act	cag	tct	cca	ctc	tcc	ctg	acc	96
Gly	Ser	Ser	Gly	Asp	Ile	Val	Met	Thr	Gln	Ser	Pro	Leu	Ser	Leu	Thr	
			20					25					30			

gtc	acc	cct	gga	gag	ccg	gcc	tcc	atc	tcc	tgc	agg	tcc	agt	cag	agc	144
Val	Thr	Pro	Gly	Glu	Pro	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser	Gln	Ser	
		35					40				45					

ctc	ctg	tat	agt	aat	gga	tac	aac	tat	ttg	gat	tgg	tac	ctg	cag	aag	192
Leu	Leu	Tyr	Ser	Asn	Gly	Tyr	Asn	Tyr	Leu	Asp	Trp	Tyr	Leu	Gln	Lys	
	50				55				60							

cca	ggg	cag	tct	cca	cag	gtc	ctg	atc	tct	ttg	ggt	tct	aat	cgg	gcc	240
Pro	Gly	Gln	Ser	Pro	Gln	Val	Leu	Ile	Ser	Leu	Gly	Ser	Asn	Arg	Ala	
	65				70				75				80			

tcc	ggg	gtc	cct	gac	agg	ttc	agt	ggc	agt	gga	tca	ggc	aca	gat	ttt	288
Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	

	85	90	95	
aca ctg aaa atc agc aga gtg gag gct gag gat gtt ggg gtt tat tac				336
Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr				
	100	105	110	
tgc atg caa gct cga caa act cca ttc act ttc ggc cct ggg acc aaa				384
Cys Met Gln Ala Arg Gln Thr Pro Phe Thr Phe Gly Pro Gly Thr Lys				
	115	120	125	
gtg gat atc aga cga act gtg gct gca cca tct gtc ttc atc ttc ccg				432
Val Asp Ile Arg Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro				
	130	135	140	
cca tct gat gag cag ttg aaa tct gga act gcc tct gtt gtg tgc ctg				480
Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu				
	145	150	155	160
ctg aat aac ttc tat ccc aga gag gcc aaa gta cag tgg aag gtg gat				528
Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp				
	165	170	175	
aac gcc ctc caa tcg ggt aac tcc cag gag agt gtc aca gag cag gac				576
Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp				
	180	185	190	
agc aag gac agc acc tac agc ctc agc agc acc ctg acg ctg agc aaa				624
Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys				
	195	200	205	
gca gac tac gag aaa cac aaa gtc tac gcc tgc gaa gtc acc cat cag				672
Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln				
	210	215	220	
ggc ctg agc tcg ccc gtc aca aag agc ttc aac agg gga gag tgt tag				720
Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys *				
	225	230	235	

<210> 2
 <211> 239
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain of 12.12 human anti-CD40 antibody

<400> 2
 Met Ala Leu Pro Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Ser
 1 5 10 15
 Gly Ser Ser Gly Asp Ile Val Met Thr Gln Ser Pro Leu Ser Leu Thr
 20 25 30
 Val Thr Pro Gly Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45
 Leu Leu Tyr Ser Asn Gly Tyr Asn Tyr Leu Asp Trp Tyr Leu Gln Lys
 50 55 60
 Pro Gly Gln Ser Pro Gln Val Leu Ile Ser Leu Gly Ser Asn Arg Ala
 65 70 75 80
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe
 85 90 95
 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110
 Cys Met Gln Ala Arg Gln Thr Pro Phe Thr Phe Gly Pro Gly Thr Lys
 115 120 125
 Val Asp Ile Arg Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro

130	135	140
Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu		
145	150	155
Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp		160
	165	170
Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp		175
	180	185
Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys		190
	195	200
Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln		205
	210	215
Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys		220
225	230	235

<210> 3
 <211> 2016
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Coding sequence for heavy chain of 12.12 human
 anti-CD40 antibody (with introns)

<400> 3

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gtc	cag	tgt	cag	gtg	cag	ttg	gtg	gag	tct	ggg	gga	ggc	gtg	gtc	cag	96
cct	ggg	agg	tcc	ctg	aga	ctc	tcc	tgt	gca	gcc	tct	gga	ttc	acc	ttc	144
agt	agc	tat	ggc	atg	cac	tgg	gtc	cgc	cag	gct	cca	ggc	aag	ggg	ctg	192
gag	tgg	gtg	gca	gtt	ata	tca	tat	gag	gaa	agt	aat	aga	tac	cat	gca	240
gac	tcc	gtg	aag	ggc	cga	ttc	acc	atc	tcc	aga	gac	aat	tcc	aag	atc	288
acg	ctg	tat	ctg	caa	atg	aac	agc	ctc	aga	act	gag	gac	acg	gct	gtg	336
tat	tac	tgt	gcg	aga	gat	ggg	ggt	ata	gca	gca	cct	ggg	cct	gac	tac	384
tgg	ggc	cag	gga	acc	ctg	gtc	acc	gtc	tcc	tca	gca	agt	acc	aag	ggc	432
cca	tcc	gtc	ttc	ccc	ctg	gcg	ccc	gct	agc	aag	agc	acc	tct	ggg	ggc	480
aca	gcg	gcc	ctg	ggc	tgc	ctg	gtc	aag	gac	tac	ttc	ccc	gaa	ccg	gtg	528
acg	gtg	tcg	tgg	aac	tca	ggc	gcc	ctg	acc	agc	ggc	gtg	cac	acc	ttc	576
ccg	gct	gtc	cta	cag	tcc	tca	gga	ctc	tac	tcc	ctc	agc	agc	gtg	gtg	624
acc	gtg	ccc	tcc	agc	agc	ttg	ggc	acc	cag	acc	tac	atc	tgc	aac	gtg	672
aat	cac	aag	ccc	agc	aac	acc	aag	gtg	gac	aag	aga	gtt	ggt	gag	agg	720
cca	gca	cag	gga	ggg	agg	gtg	tct	gct	gga	agc	cag	gct	cag	cgc	tcc	768
tgc	ctg	gac	gca	tcc	cgg	cta	tgc	agt	ccc	agt	cca	ggg	cag	caa	ggc	816
agg	ccc	cgt	ctg	cct	ctt	cac	ccg	gag	gcc	tct	gcc	cgc	ccc	act	cat	864
gct	cag	gga	gag	ggt	ctt	ctg	gct	ttt	tcc	cca	ggc	tct	ggg	cag	gca	912
cag	gct	agg	tgc	ccc	taa	ccc	agg	ccc	tgc	aca	caa	agg	ggc	agg	tgc	960
tgg	gct	cag	acc	tgc	caa	gag	cca	tat	ccg	gga	gga	ccc	tgc	ccc	tga	1008
cct	aag	ccc	acc	cca	aag	gcc	aaa	ctc	tcc	act	ccc	tca	gct	cgg	aca	1056
cct	tct	ctc	ctc	cca	gat	tcc	agt	aac	tcc	caa	tct	tct	ctc	tgc	aga	1104
gcc	caa	atc	ttg	tga	caa	aac	tca	cac	atg	ccc	acc	gtg	ccc	agg	taa	1152
gcc	agc	cca	ggc	ctc	gcc	ctc	cag	ctc	aag	gcg	gga	cag	gtg	ccc	tag	1200
agt	agc	ctg	cat	cca	ggg	aca	ggc	ccc	agc	cgg	gtg	ctg	aca	cgt	cca	1248
cct	cca	tct	ctt	cct	cag	cac	ctg	aac	tcc	tgg	ggg	gac	cgt	cag	tct	1296
tcc	tct	tcc	ccc	caa	aac	cca	agg	aca	ccc	tca	tga	tct	ccc	gga	ccc	1344
ctg	agg	tca	cat	gcg	tgg	tgg	tgg	acg	tga	gcc	acg	aag	acc	ctg	agg	1392
tca	agt	tca	act	ggt	acg	tgg	acg	gcg	tgg	agg	tgc	ata	atg	cca	aga	1440
caa	agc	cgc	ggg	agg	agc	agt	aca	aca	gca	cgt	acc	gtg	tgg	tca	gcg	1488
tcc	tca	ccg	tcc	tgc	acc	agg	act	ggc	tga	atg	gca	agg	agt	aca	agt	1536
gca	agg	tct	cca	aca	aag	ccc	tcc	cag	ccc	cca	tcg	aga	aaa	cca	tct	1584
cca	aag	cca	aag	gtg	gga	ccc	gtg	ggg	tgc	gag	ggc	cac	atg	gac	aga	1632
ggc	cgg	ctc	ggc	cca	ccc	tct	gcc	ctg	aga	gtg	acc	gct	gta	cca	acc	1680
tct	gtc	cct	aca	ggg	cag	ccc	cga	gaa	cca	cag	gtg	tac	acc	ctg	ccc	1728
cca	tcc	cgg	gag	gag	atg	acc	aag	aac	cag	gtc	agc	ctg	acc	tgc	ctg	1776
gtc	aaa	ggc	ttc	tat	ccc	agc	gac	atc	gcc	gtg	gag	tgg	gag	agc	aat	1824
ggg	cag	ccg	gag	aac	aac	tac	aag	acc	acg	cct	ccc	gtg	ctg	gac	tcc	1872
gac	ggc	tcc	ttc	ttc	ctc	tat	agc	aag	ctc	acc	gtg	gac	aag	agc	agg	1920
tgg	cag	cag	ggg	aac	gtc	ttc	tca	tgc	tcc	gtg	atg	cat	gag	gct	ctg	1968

cac aac cac tac acg cag aag agc ctc tcc ctg tct ccg ggt aaa tga 2016

<210> 4
 <211> 469
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of 12.12 human anti-CD40 antibody

<400> 4
 Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Ile Leu Arg Gly
 1 5 10 15
 Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
 20 25 30
 Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35 40 45
 Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 50 55 60
 Glu Trp Val Ala Val Ile Ser Tyr Glu Glu Ser Asn Arg Tyr His Ala
 65 70 75 80
 Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ile
 85 90 95
 Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Asp Gly Gly Ile Ala Ala Pro Gly Pro Asp Tyr
 115 120 125
 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 130 135 140
 Pro Ser Val Phe Pro Leu Ala Pro Ala Ser Lys Ser Thr Ser Gly Gly
 145 150 155 160
 Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 165 170 175
 Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
 180 185 190
 Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 195 200 205
 Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 210 215 220
 Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 225 230 235 240
 Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 245 250 255
 Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 260 265 270
 Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 275 280 285
 Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 290 295 300
 Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 305 310 315 320
 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 325 330 335
 Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 340 345 350
 Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 355 360 365
 Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 370 375 380
 Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 385 390 395 400
 Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 405 410 415
 Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 420 425 430

Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 435 440 445
 Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 450 455 460
 Leu Ser Pro Gly Lys
 465

<210> 5
 <211> 469
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of variant of 12.12 human anti-CD40
 antibody

<400> 5
 Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Ala Ile Leu Arg Gly
 1 5 10 15
 Val Gln Cys Gln Val Gln Leu Val Glu Ser Gly Gly Gly Val Val Gln
 20 25 30
 Pro Gly Arg Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35 40 45
 Ser Ser Tyr Gly Met His Trp Val Arg Gln Ala Pro Gly Lys Gly Leu
 50 55 60
 Glu Trp Val Ala Val Ile Ser Tyr Glu Glu Ser Asn Arg Tyr His Ala
 65 70 75 80
 Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Ile
 85 90 95
 Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Thr Glu Asp Thr Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Asp Gly Gly Ile Ala Ala Pro Gly Pro Asp Tyr
 115 120 125
 Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
 130 135 140
 Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly
 145 150 155 160
 Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val
 165 170 175
 Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe
 180 185 190
 Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val
 195 200 205
 Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val
 210 215 220
 Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys
 225 230 235 240
 Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 245 250 255
 Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 260 265 270
 Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 275 280 285
 Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 290 295 300
 Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 305 310 315 320
 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 325 330 335
 Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 340 345 350
 Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 355 360 365
 Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln
 370 375 380

Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 385 390 395 400
 Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 405 410 415
 Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 420 425 430
 Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 435 440 445
 Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser
 450 455 460
 Leu Ser Pro Gly Lys
 465

<210> 6
 <211> 239
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Light chain of 5.9 human anti-CD40 antibody

<400> 6
 Met Ala Leu Leu Ala Gln Leu Leu Gly Leu Leu Met Leu Trp Val Pro
 1 5 10 15
 Gly Ser Ser Gly Ala Ile Val Met Thr Gln Pro Pro Leu Ser Ser Pro
 20 25 30
 Val Thr Leu Gly Gln Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser
 35 40 45
 Leu Val His Ser Asp Gly Asn Thr Tyr Leu Asn Trp Leu Gln Gln Arg
 50 55 60
 Pro Gly Gln Pro Pro Arg Leu Leu Ile Tyr Lys Phe Phe Arg Arg Leu
 65 70 75 80
 Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ala Gly Thr Asp Phe
 85 90 95
 Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 100 105 110
 Cys Met Gln Val Thr Gln Phe Pro His Thr Phe Gly Gln Gly Thr Arg
 115 120 125
 Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
 130 135 140
 Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
 145 150 155 160
 Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
 165 170 175
 Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
 180 185 190
 Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
 195 200 205
 Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
 210 215 220
 Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

<210> 7
 <211> 474
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Heavy chain of 5.9 human anti-CD40 antibody

<400> 7
 Met Gly Ser Thr Ala Ile Leu Ala Leu Leu Leu Ala Val Leu Gln Gly
 1 5 10 15

Val Cys Ala Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
 20 25 30
 Pro Gly Glu Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Ser Phe
 35 40 45
 Thr Ser Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu
 50 55 60
 Glu Trp Met Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser
 65 70 75 80
 Pro Ser Phe Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser
 85 90 95
 Thr Ala Tyr Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met
 100 105 110
 Tyr Tyr Cys Ala Arg Gly Thr Ala Ala Gly Arg Asp Tyr Tyr Tyr Tyr
 115 120 125
 Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 130 135 140
 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ala Ser Lys
 145 150 155 160
 Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 165 170 175
 Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 180 185 190
 Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 195 200 205
 Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
 210 215 220
 Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
 225 230 235 240
 Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
 245 250 255
 Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
 260 265 270
 Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
 275 280 285
 Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
 290 295 300
 Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
 305 310 315 320
 Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
 325 330 335
 His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
 340 345 350
 Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
 355 360 365
 Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
 370 375 380
 Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
 385 390 395 400
 Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
 405 410 415
 Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
 420 425 430
 Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
 435 440 445
 Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
 450 455 460
 Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 465 470

<210> 8
 <211> 474
 <212> PRT
 <213> Artificial Sequence

<220>

<223> Heavy chain of variant of 5.9 human anti-CD40
antibody

<400> 8

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Met Gly Ser Thr Ala Ile Leu Ala Leu Leu Ala Val Leu Gln Gly
 1           5           10           15
Val Cys Ala Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
          20           25           30
Pro Gly Glu Ser Leu Lys Ile Ser Cys Lys Gly Ser Gly Tyr Ser Phe
      35           40           45
Thr Ser Tyr Trp Ile Gly Trp Val Arg Gln Met Pro Gly Lys Gly Leu
      50           55           60
Glu Trp Met Gly Ile Ile Tyr Pro Gly Asp Ser Asp Thr Arg Tyr Ser
65           70           75           80
Pro Ser Phe Gln Gly Gln Val Thr Ile Ser Ala Asp Lys Ser Ile Ser
          85           90           95
Thr Ala Tyr Leu Gln Trp Ser Ser Leu Lys Ala Ser Asp Thr Ala Met
      100           105           110
Tyr Tyr Cys Ala Arg Gly Thr Ala Ala Gly Arg Asp Tyr Tyr Tyr Tyr
      115           120           125
Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
      130           135           140
Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys
145           150           155           160
Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
          165           170           175
Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
      180           185           190
Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
      195           200           205
Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr
      210           215           220
Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys
225           230           235           240
Arg Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys
          245           250           255
Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro
      260           265           270
Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys
      275           280           285
Val Val Val Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp
      290           295           300
Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu
305           310           315           320
Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu
          325           330           335
His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn
      340           345           350
Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly
      355           360           365
Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Glu Glu
      370           375           380
Met Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr
385           390           395           400
Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn
          405           410           415
Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe
      420           425           430
Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn
      435           440           445
Val Phe Ser Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr
      450           455           460
Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
465           470

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<210> 9
 <211> 612
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(612)

<221> misc_feature
 <222> (0)...(0)
 <223> Coding sequence for short isoform of human CD40

<400> 9
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 Met Val Arg Leu Pro Leu Gln Cys Val Leu Trp Gly Cys Leu Leu Thr
 1 5 10 15
 gct gtc cat cca gaa cca ccc act gca tgc aga gaa aaa cag tac cta 96
 Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
 20 25 30
 ata aac agt cag tgc tgt tct ttg tgc cag cca gga cag aaa ctg gtg 144
 Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
 35 40 45
 agt gac tgc aca gag ttc act gaa acg gaa tgc ctt cct tgc ggt gaa 192
 Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
 50 55 60
 agc gaa ttc cta gac acc tgg aac aga gag aca cac tgc cac cag cac 240
 Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
 65 70 75 80
 aaa tac tgc gac ccc aac cta ggg ctt cgg gtc cag cag aag ggc acc 288
 Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
 85 90 95
 tca gaa aca gac acc atc tgc acc tgt gaa gaa ggc tgg cac tgt acg 336
 Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
 100 105 110
 agt gag gcc tgt gag agc tgt gtc ctg cac cgc tca tgc tcg ccc ggc 384
 Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
 115 120 125
 ttt ggg gtc aag cag att gct aca ggg gtt tct gat acc atc tgc gag 432
 Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
 130 135 140
 ccc tgc cca gtc ggc ttc ttc tcc aat gtg tca tct gct ttc gaa aaa 480
 Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
 145 150 155 160
 tgt cac cct tgg aca agg tcc cca gga tcg gct gag agc cct ggt ggt 528
 Cys His Pro Trp Thr Arg Ser Pro Gly Ser Ala Glu Ser Pro Gly Gly
 165 170 175
 gat ccc cat cat ctt cgg gat cct gtt tgc cat cct ctt ggt gct ggt 576
 Asp Pro His His Leu Arg Asp Pro Val Cys His Pro Leu Gly Ala Gly
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 ctt tat caa aaa ggt ggc caa gaa gcc aac caa taa 612
 Leu Tyr Gln Lys Gly Gly Gln Glu Ala Asn Gln *
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<210> 10
 <211> 203
 <212> PRT
 <213> Homo sapiens

<400> 10
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 20 25 30
 Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
 35 40 45
 Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
 50 55 60
 Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
 65 70 75 80
 Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
 85 90 95
 Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
 100 105 110
 Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
 115 120 125
 Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
 130 135 140
 Pro Cys Pro Val Gly Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
 145 150 155 160
 Cys His Pro Trp Thr Arg Ser Pro Gly Ser Ala Glu Ser Pro Gly Gly
 165 170 175
 Asp Pro His His Leu Arg Asp Pro Val Cys His Pro Leu Gly Ala Gly
 180 185 190
 Leu Tyr Gln Lys Gly Gly Gln Glu Ala Asn Gln
 195 200

<210> 11
 <211> 834
 <212> DNA
 <213> Homo sapiens

<220>
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<400> 11
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 gct gtc cat cca gaa cca ccc act gca tgc aga gaa aaa cag tac cta 96
 Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
 20 25 30
 ata aac agt cag tgc tgt tct ttg tgc cag cca gga cag aaa ctg gtg 144
 Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
 35 40 45
 agt gac tgc aca gag ttc act gaa acg gaa tgc ctt cct tgc ggt gaa 192
 Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
 50 55 60
 agc gaa ttc cta gac acc tgg aac aga gag aca cac tgc cac cag cac 240

Ser	Glu	Phe	Leu	Asp	Thr	Trp	Asn	Arg	Glu	Thr	His	Cys	His	Gln	His		
65					70					75					80		
aaa	tac	tgc	gac	ccc	aac	cta	ggg	ctt	cgg	gtc	cag	cag	aag	ggc	acc	288	
Lys	Tyr	Cys	Asp	Pro	Asn	Leu	Gly	Leu	Arg	Val	Gln	Gln	Lys	Gly	Thr		
			85						90					95			
tca	gaa	aca	gac	acc	atc	tgc	acc	tgt	gaa	gaa	ggc	tgg	cac	tgt	acg	336	
Ser	Glu	Thr	Asp	Thr	Ile	Cys	Thr	Cys	Glu	Glu	Gly	Trp	His	Cys	Thr		
			100					105					110				
agt	gag	gcc	tgt	gag	agc	tgt	gtc	ctg	cac	cgc	tca	tgc	tcg	ccc	ggc	384	
Ser	Glu	Ala	Cys	Glu	Ser	Cys	Val	Leu	His	Arg	Ser	Cys	Ser	Pro	Gly		
		115					120					125					
ttt	ggg	gtc	aag	cag	att	gct	aca	ggg	gtt	tct	gat	acc	atc	tgc	gag	432	
Phe	Gly	Val	Lys	Gln	Ile	Ala	Thr	Gly	Val	Ser	Asp	Thr	Ile	Cys	Glu		
	130					135					140						
ccc	tgc	cca	gtc	ggc	ttc	ttc	tcc	aat	gtg	tca	tct	gct	ttc	gaa	aaa	480	
Pro	Cys	Pro	Val	Gly	Phe	Phe	Ser	Asn	Val	Ser	Ser	Ala	Phe	Glu	Lys		
	145				150					155				160			
tgt	cac	cct	tgg	aca	agc	tgt	gag	acc	aaa	gac	ctg	gtt	gtg	caa	cag	528	
Cys	His	Pro	Trp	Thr	Ser	Cys	Glu	Thr	Lys	Asp	Leu	Val	Val	Gln	Gln		
			165						170					175			
gca	ggc	aca	aac	aag	act	gat	gtt	gtc	tgt	ggg	ccc	cag	gat	cgg	ctg	576	
Ala	Gly	Thr	Asn	Lys	Thr	Asp	Val	Val	Cys	Gly	Pro	Gln	Asp	Arg	Leu		
			180					185					190				
aga	gcc	ctg	gtg	gtg	atc	ccc	atc	atc	ttc	ggg	atc	ctg	ttt	gcc	atc	624	
Arg	Ala	Leu	Val	Val	Ile	Pro	Ile	Ile	Phe	Gly	Ile	Leu	Phe	Ala	Ile		
		195				200						205					
ctc	ttg	gtg	ctg	gtc	ttt	atc	aaa	aag	gtg	gcc	aag	aag	cca	acc	aat	672	
Leu	Leu	Val	Leu	Val	Phe	Ile	Lys	Lys	Val	Ala	Lys	Lys	Pro	Thr	Asn		
	210				215						220						
aag	gcc	ccc	cac	ccc	aag	cag	gaa	ccc	cag	gag	atc	aat	ttt	ccc	gac	720	
Lys	Ala	Pro	His	Pro	Lys	Gln	Glu	Pro	Gln	Glu	Ile	Asn	Phe	Pro	Asp		
	225				230				235				240				
gat	ctt	cct	ggc	tcc	aac	act	gct	gct	cca	gtg	cag	gag	act	tta	cat	768	
Asp	Leu	Pro	Gly	Ser	Asn	Thr	Ala	Ala	Pro	Val	Gln	Glu	Thr	Leu	His		
			245						250				255				
gga	tgc	caa	ccg	gtc	acc	cag	gag	gat	ggc	aaa	gag	agt	cgc	atc	tca	816	
Gly	Cys	Gln	Pro	Val	Thr	Gln	Glu	Asp	Gly	Lys	Glu	Ser	Arg	Ile	Ser		
		260						265					270				
gtg	cag	gag	aga	cag	tga											834	
Val	Gln	Glu	Arg	Gln	*												
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<210> 12
 <211> 277
 <212> PRT
 <213> Homo sapiens

<400> 12
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 1 5 10 15
 Ala Val His Pro Glu Pro Pro Thr Ala Cys Arg Glu Lys Gln Tyr Leu
 20 25 30

Ile Asn Ser Gln Cys Cys Ser Leu Cys Gln Pro Gly Gln Lys Leu Val
 35 40 45
 Ser Asp Cys Thr Glu Phe Thr Glu Thr Glu Cys Leu Pro Cys Gly Glu
 50 55 60
 Ser Glu Phe Leu Asp Thr Trp Asn Arg Glu Thr His Cys His Gln His
 65 70 75 80
 Lys Tyr Cys Asp Pro Asn Leu Gly Leu Arg Val Gln Gln Lys Gly Thr
 85 90 95
 Ser Glu Thr Asp Thr Ile Cys Thr Cys Glu Glu Gly Trp His Cys Thr
 100 105 110
 Ser Glu Ala Cys Glu Ser Cys Val Leu His Arg Ser Cys Ser Pro Gly
 115 120 125
 Phe Gly Val Lys Gln Ile Ala Thr Gly Val Ser Asp Thr Ile Cys Glu
 130 135 140
 Pro Cys Pro Val Gly Phe Phe Ser Asn Val Ser Ser Ala Phe Glu Lys
 145 150 155 160
 Cys His Pro Trp Thr Ser Cys Glu Thr Lys Asp Leu Val Val Gln Gln
 165 170 175
 Ala Gly Thr Asn Lys Thr Asp Val Val Cys Gly Pro Gln Asp Arg Leu
 180 185 190
 Arg Ala Leu Val Val Ile Pro Ile Ile Phe Gly Ile Leu Phe Ala Ile
 195 200 205
 Leu Leu Val Leu Val Phe Ile Lys Lys Val Ala Lys Lys Pro Thr Asn
 210 215 220
 Lys Ala Pro His Pro Lys Gln Glu Pro Gln Glu Ile Asn Phe Pro Asp
 225 230 235 240
 Asp Leu Pro Gly Ser Asn Thr Ala Ala Pro Val Gln Glu Thr Leu His
 245 250 255
 Gly Cys Gln Pro Val Thr Gln Glu Asp Gly Lys Glu Ser Arg Ile Ser
 260 265 270
 Val Gln Glu Arg Gln
 275